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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,724	03/15/2002	Murray Steven Rodgers	50060-00051	1885

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EXAMINER

DINH, TUAN T

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/099,724	RODGERS ET AL.	
	Examiner	Art Unit	
	Tuan T Dinh	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 8,16-23 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-8,10-12,24-30 and 32-41 is/are rejected.
- 7) ☒ Claim(s) 13-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

1. Applicant's election of Group I (claims 1-15, and 24-41) in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Applicant's election with traverse of Group I, Specie 3 (claims 1-8, 10-15, 24-30, 22-41, figure 3C) in Paper No. 4 is acknowledged. The traversal is on the ground(s) that all claims, for example: claim 33, reads on each of species and is generic. This is not found persuasive because the method steps can be made without the step of depositing a first layer...removing strips...to provide conductive lines by using photo-mask techniques. The conductive line can be formed in different structures of a shield multi-conductor interconnect bus as shown in different species, for example, figures 3A-B show a different structure of the conductive line formed in the bus, and figure 3C shows a conductive line breaking out from the bus. Claim 33 maybe reads on species I-III, but it does not read on species IV-IX as well.

The requirement is still deemed proper and is therefore made FINAL. Claims 9, 16-23, and 31 are withdrawn from further consideration as being drawn to non-elected subject matter.

Examiner would exams claims 1-8, 10-15, 24-30, and 32-41 based on figure 3C that represents for **final product** of this invention.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “first dielectric layer comprises lower and upper layer, claim 3, lines 2-4, claim 25, lines 2-3, and claim 35, lines 2-4”, “a second dielectric layer, claims 4 and 36, line 2”, and “a first and a second conductive layers of doped polysilicon, and the second conductive layer comprises two separately deposited layers of doped polysilicon, claims 6-8” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 3-5, 25-27, and 35-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification, specify in figure 3C, is silent regarding “the first dielectric layer comprises lower and upper layers, and a second dielectric layer overlying the conductive lines and the first

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dielectric layer”, “a shielded electrically conductive line, claim 33, line 1”, and “a second dielectric layer, claims 4 and 36, line 2”, “a first and a second conductive layers of doped polysilicon, and the second conductive layer comprises two separately deposited layers of doped polysilicon, claims 6-8”, and “conductive line being surrounded by dielectric material along a lengthwise extent of each said electrically conductive line, claim 24, lines 4-5”.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 4-8, 24-26, 28-30, 32, 33-34, and 36-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Ma (U. S Patent 6,022,787).

As to claims 1, 24-26, 33, and 41, Ma discloses a shielded multi-conductor interconnect bus as shown in figures 8-17 comprising:

a substrate (122-figure 8);

a first dielectric layer (124-figure 8) overlying and supported by at least a portion of said substrate (122);

one or a plurality of parallel electrically conductive lines (130-figures 10-15, 171-174-figure 16, and 191-193-figure 17) formed on said first dielectric layer;

a plurality of parallel electrically conductive walls(140, 142-figure 13) formed on said first dielectric layer, each said electrically conductive wall including an upper

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section (150; 152) extending vertically above the level of said electrically conductive lines; and

an electrically conductive shield (138) formed in a spaced relation above said electrically conductive lines and in contact with said upper sections of said electrically conductive walls;

wherein said electrically conductive lines and said electrically conductive walls are arranged in pattern;

wherein one of said electrically conductive walls is located between sets of said electrically conductive lines, each said set of electrically conductive lines including at least one of said electrically conductive lines.

As to claims 2, 34, Ma discloses the interconnect bus as shown in figures 8-17 wherein said first dielectric layer (124) is formed on an upper surface of said substrate (122), and wherein said first dielectric layer includes a plurality of parallel channels (134, 136-figure 12) formed therein, each said channel extending vertically down into said first dielectric layer to expose the upper surface of said substrate along at least a portion of said channel, each said electrically conductive wall including a lower section formed in one of said channels.

As best understood to claims 4-5, 36-37, Ma discloses the interconnect bus as shown in figures 8-17 further comprising: a second dielectric layer (128, see figures 10-15) made of silicon dioxide (column 7, lines 56-57) overlying said electrically conductive lines and said first dielectric layer (see figures 11-15), said second dielectric layer (128) having a plurality of channels (134, 136-figure 12) formed therein permitting said upper

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sections of said electrically conductive walls to extend vertically upward therethrough to contact said electrically conductive shield (138).

As best understood to claims 6-8, 28-30, 38-40, Ma discloses the interconnect bus as shown in figures 8-15 wherein said electrically conductive lines and said lower sections of said electrically conductive walls are formed from a first layer of doped polysilicon (128), and said upper sections of said electrically conductive walls and said electrically conductive shield are formed from a second layer of doped polysilicon (132-figures 13-15).

As to claims 10, 32, Ma discloses the interconnect bus as shown in figures 16-17 wherein each said set of electrically conductive lines includes two of said electrically conductive lines.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma ('787) in view of Nakajima et al. (U. S. Patent 5,880,024).

Ma does not disclose said electrically conductive walls are laterally spaced from each other by no more than 10 microns. Nakajima shows a semiconductor IC device as

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shown in figure 3 comprising a conductive walls (28) having space from each other by no more than 10 microns.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have teaching's Nakajima to employ the interconnect bus of Ma in order to provide a small dielectric constant and reduce impedance of conductive lines between of conductive walls.

Allowable Subject Matter

9. Claims 3, 27, 35 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. Claims 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

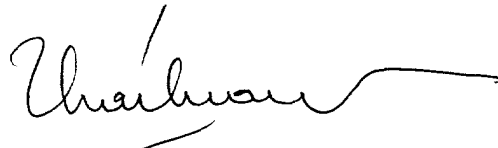
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Inoue, Kobayashi, Kerns, Sandhu et al., and Knoedl, Jr. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Tuan Thai

TD

July 12, 2003